

Contents of *Aquaculture*, Volume 271

VOL. 271 NOS. 1–4

3 October 2007

Review Article

- Antimicrobial use in shrimp farming in Ecuador and emerging multi-resistance during the cholera epidemic of 1991: A re-examination of the data
P. Smith (Galway, Ireland) 1

Diseases

- Comparative study on immune response of *Fenneropenaeus indicus* to *Vibrio alginolyticus* and white spot syndrome virus
M. Sarathi, V.P. Ishaq Ahmed, C. Venkatesan, G. Balasubramanian, J. Prabavathy and A.S. Sahul Hameed (Tamil Nadu, India) 8
- Inhibition of white spot syndrome virus in *Litopenaeus vannamei* shrimp by sequence-specific siRNA
Y. Wu, L. Lü, L.-S. Yang, S.-P. Weng (Guangzhou, PR China), S.-M. Chan (Hong Kong, China) and J.-G. He (Guangzhou, PR China) 21
- Investigation into the pathogenicity of *Penaeus merguensis* densovirus (*PmergDNV*) to juvenile *Cherax quadricarinatus*
K.L. Fauce and L. Owens (Townsville, QLD, Australia) 31
- Hematology of *Piaractus mesopotamicus* fed diets supplemented with vitamins C and E, challenged by *Aeromonas hydrophila*
F. Garcia (Jaboticabal, Votuporanga, Brazil), F. Pilarski (Jaboticabal, Brazil), E.M. Onaka (São José do Rio Preto, Brazil), F.R. de Moraes (Jaboticabal, Brazil) and M.L. Martins (Florianópolis, Brazil) 39
- Occurrence and virulence of *Pseudoalteromonas* spp. in cultured gilthead sea bream (*Sparus aurata* L.) and European sea bass (*Dicentrarchus labrax* L.). Molecular and phenotypic characterisation of *P. undina* strain U58
M.J. Pujalte (València, Spain), A. Sitjà-Bobadilla (Castellón, Spain), M.C. Macián (València, Spain), P. Álvarez-Pellitero (Castellón, Spain) and E. Garay (València, Spain) 47
- Nocardiosis in snakehead, *Ophiocephalus argus* Cantor
G.-L. Wang, Y.-J. Xu, S. Jin, J.-L. Zhu and S.-P. Yuan (Ningbo, China) 54
- The immune response of white shrimp *Penaeus vannamei* and its susceptibility to *Vibrio alginolyticus* under sulfide stress
S.-W. Hsu and J.-C. Chen (Keelung, Taiwan, ROC) 61
- Behavioural studies of host, non-host and mate location by the Sea Louse, *Caligus rogercresseyi* Boxshall & Bravo, 2000 (Copepoda: Caligidae)
J. Pino-Marambio (Temuco, Chile), A.J. Mordue (Luntz) (Aberdeen, United Kingdom), M. Birkett (Hertfordshire, United Kingdom), J. Carvajal, G. Asencio, A. Mellado (Puerto Montt, Chile) and A. Quiroz (Temuco, Chile) 70
- Epidemiology of blindness and cataracts in cage reared ongrown Atlantic halibut *Hippoglossus hippoglossus*
J.W. Treasurer (Ardnamurchan, UK), D.I. Cox and T. Wall (Inverness, UK) 77
- Risk assessment for metazoan parasites of yellowtail kingfish *Seriola lalandi* (Perciformes: Carangidae) in South Australian sea-cage aquaculture
K.S. Hutson (Adelaide, South Australia, Australia), I. Ernst (Adelaide, South Australia, Canberra, ACT, Australia) and I.D. Whittington (Adelaide, North Terrace, South Australia, Australia) 85
- Mortality after IPNV challenge of Atlantic salmon (*Salmo salar* L.) differs based on developmental stage of fish or challenge route
A. Rønneseth, H.I. Wergeland, M. Devik, Ø. Evensen and E.F. Pettersen (Bergen, Norway) 100
- Identification of a protein binding to the phagocytosis activating protein (PAP) in immunized black tiger shrimp
W. Chotigeat, P. Deachamag and A. Phongdara (Songkhla, Thailand) 112

Genetics

- Genetic diversity of hatchery stocks of giant freshwater prawn (*Macrobrachium rosenbergii*) in Thailand
K. Chareontawee (Nakorn Pathom, Thailand), S. Poompuang, U. Na-Nakorn and W. Kamonrat (Bangkok, Thailand) 121
- Culture of triploid greenlip abalone (*Haliotis laevis* Donovan) to market size: Commercial implications
G.A. Dunstan, N.G. Elliott, S.A. Appleyard, B.H. Holmes, N. Conod, M.A. Grubert and M.A. Cozens (Tasmania, Australia) 130

Yellow perch strain evaluation I: Genetic variance of six broodstock populations B. Brown (Richmond, Virginia, USA), H.-P. Wang (Piketon, Ohio, USA), L. Li (Richmond, Virginia, USA; Qingdao, China), C. Givens (Richmond, Virginia, USA) and G. Wallat (Piketon, Ohio, USA)	142
Genetic comparison of cultured and wild populations of the clam <i>Coelomactra antiquata</i> (Spengler) in China using AFLP markers L. Kong and Q. Li (Qingdao, China)	152
Genetic potential for simultaneous selection of growth and body composition in rainbow trout (<i>Oncorhynchus mykiss</i>) depends on the dietary protein and lipid content: Phenotypic and genetic correlations on two diets A. Kause (Jokioinen, Finland), D. Tobin (Aberdeen, UK), E.A. Mäntysaari (Jokioinen, Finland), S.A.M. Martin, D.F. Houlihan (Aberdeen, UK), A. Kiessling (Matredal, Ås, Norway), K. Rungruangsak-Torrissen (Matredal, Norway), O. Ritola (Tervo, Finland) and K. Ruohonen (Turku, Finland)	162
Positive genetic correlation between resistance to bacterial (furunculosis) and viral (infectious salmon anaemia) diseases in farmed Atlantic salmon (<i>Salmo salar</i>) J. Ødegård, I. Olesen, B. Gjerde and G. Klemetsdal (Ås, Norway)	173
Construction of genetic linkage maps of guppy (<i>Poecilia reticulata</i>) based on AFLP and microsatellite DNA markers X. Shen, G. Yang, Y. Liu, M. Liao, X. Wang, M. Zhu, W. Song (Qingdao, PR China), G. Zou, Q. Wei, D. Wang and D. Chen (Jingzhou, PR China)	178
Husbandry and Management	
Bath sponge aquaculture in Torres Strait, Australia: Effect of explant size, farming method and the environment on culture success A.R. Duckworth and C. Wolff (Townsville, QLD, Australia)	188
Use of periphytic cyanobacterium and mixed diatoms coated substrate for improving water quality, survival and growth of <i>Penaeus monodon</i> Fabricius postlarvae H. Khatoon, F.Md. Yusoff, S. Banerjee, M. Shariff and S. Mohamed (Serdang, Malaysia)	196
Effect of water velocity on the growth of California halibut (<i>Paralichthys californicus</i>) juveniles G.E. Merino (Coquimbo, La Serena, Chile), R.H. Piedrahita and D.E. Conklin (Davis, California, USA)	206
Growth model for Atlantic cod (<i>Gadus morhua</i>): Effects of temperature and body weight on growth rate B. Björnsson (Reykjavik, Iceland), A. Steinarsson (Grindavik, Iceland) and T. Árnason (Akureyri, Iceland)	216
Ammonia and urea excretion rates of California halibut (<i>Paralichthys californicus</i> , Ayres) under farm-like conditions G.E. Merino (Coquimbo, La Serena, Chile), R.H. Piedrahita and D.E. Conklin (Davis, California, USA)	227
Interactive effects of oxygen saturation and ammonia on growth and blood physiology in juvenile turbot A. Foss (Bergen, Norway), A.K. Imsland (Kópavogur, Iceland; Bergen, Norway), B. Roth (Bergen, Norway), E. Schram (IJmuiden, The Netherlands) and S.O. Stefansson (Bergen, Norway)	244
Loss of allele diversity in introduced populations of the hermaphroditic bay scallop <i>Argopecten irradians</i> L. Wang (Qingdao, China), H. Zhang (Qingdao, Beijing, China), L. Song (Qingdao, China) and X. Guo (Port Norris, New Jersey, USA) ...	252
Diet composition and preference of juvenile Murray cod, trout cod and Macquarie perch (Percichthyidae) reared in fertilised earthen ponds B.A. Ingram (Alexandra, VIC, Australia) and S.S. De Silva (Warrnambool, VIC, Australia)	260
Storage of <i>Caiman latirostris</i> (Crocodylia: Alligatoridae) eggs in harvest containers: Effects on hatchability C.I. Piña, M. Simoncini (Santa Fe, Entre Rios, Argentina), P. Siroski and A. Larriera (Santa Fe, Argentina)	271
Development of a new protocol for testing bath sponge quality D. Loudon, S. Inderbitzin, Z. Peng and R. de Nys (QLD, Australia)	275
Utility of sea urchin embryo-larval bioassays for assessing the environmental impact of marine fishcage farming A. Marin, S. Montoya, R. Vita, L. Marin-Guirao, J. Lloret and F. Aguado (Murcia, Spain)	286
Effect of delayed initial feeding on growth and survival of Asian sea bass <i>Lates calcarifer</i> (Bloch) larvae M. Kailasam, A.R. Thirunavukkarasu (Chennai, India), S. Selvaraj (Fukuoka, Japan) and P. Stalin (Chennai, India)	298
Agonistic behaviour of signal crayfish (<i>Pacifastacus leniusculus</i> Dana) in different social environments: Effect of size heterogeneity on growth and food intake T. Ahvenharju (Evo, Finland) and K. Ruohonen (Turku, Finland)	307
Survival, growth and digestive enzyme activity of juveniles of the fat snook (<i>Centropomus parallelus</i>) reared at different salinities M.Y. Tsuzuki, J.K. Sugai, J.C. Maciel, C.J. Francisco and V.R. Cerqueira (Florianópolis, Brazil)	319
Deleterious effects of food restrictions in yellowtail kingfish <i>Seriola lalandi</i> during early development B.N. Chen, J.G. Qin (Adelaide, SA, Australia), J.F. Carragher, S.M. Clarke, M.S. Kumar and W.G. Hutchinson (Henly Beach, Australia) ...	326
Effects of oyster farming on macrofaunal assemblages associated with <i>Lanice conchilega</i> tubeworm populations: A trophic analysis using natural stable isotopes S. Dubois, J.C. Marin-Léal (Caen cedex, France), M. Ropert (Port en Bessin, France) and S. Lefebvre (Caen cedex, France)	336
Effects of feeding frequency and ration level on growth, feed utilization and nitrogen waste output of cuneate drum (<i>Nibea miichthioides</i>) reared in net pens Y. Wang (Hangzhou, Shanghai, China), L.-J. Kong, K. Li (Shanghai, China) and D.P. Bureau (Guelph, Ontario, Canada)	350
Comparison between some procedures for monitoring offshore cage culture in western Mediterranean Sea: Sampling methods and impact indicators in soft substrata F. Aguado-Giménez, A. Marin, S. Montoya, L. Marin-Guirao, A. Piedecausa and B. Garcia-Garcia (Murcia, Spain)	357
Towards the maximum profitability of smallholder catfish nurseries: Predator defense and feeding-adapted stocking of <i>Clarias gariepinus</i> S. Yong-Sulem (Foumban, Cameroon), R.E. Brummett (Yaoundé, Cameroon), T.E. Tabi and J. Tchoumboué (Dschang, Cameroon)	371

- The effect of different substrates on pearl oyster *Pinctada martensii* (Dunker) larvae settlement
Z. Su (Guangzhou, Beijing, Lianyungang, China), L. Huang, Y. Yan (Guangzhou, China) and H. Li (Guangzhou, Beijing, China). 377
- Relationships between oyster mortality patterns and environmental data from monitoring databases along the coasts of France
P. Soletchnik (La Tremblade, France), M. Ropert, J. Mazurié, P. Gildas Fleury and F. Le Coz (France). 384

Nutrition

- Taurine supplementation to alternative dietary proteins used in fish meal replacement enhances growth of juvenile cobia (*Rachycentron canadum*)
A.N. Lunger, E. McLean (Blacksburg, VA, USA), T.G. Gaylord (Hagerman, ID, USA), D. Kuhn and S.R. Craig (Blacksburg, VA, USA). 401
- The ingestion rate of *Litopenaeus vannamei* larvae as a function of *Tisbe biminiensis* copepod concentration
L.C.M. de Lima and L.P. Souza-Santos (Recife, Brazil). 411
- Effect of dietary canola oil level on the growth performance and fatty acid composition of juvenile red sea bream, *Pagrus major*
S.S.Y. Huang (Vancouver, BC, Canada), A.N. O-o (Minato City, Tokyo, Japan), D.A. Higgs, C.J. Brauner (Vancouver, BC, Canada) and S. Satoh (Minato City, Tokyo, Japan). 420
- Bioimpedance assessment of body composition in cobia *Rachycentron canadum* (L. 1766)
M. Duncan, S.R. Craig, A.N. Lunger, D.D. Kuhn, G. Salze and E. McLean (Blacksburg, VA, USA). 432
- Effect of dietary protein level on growth and energy utilization by *Litopenaeus stylirostris* under laboratory conditions
F. Gauquelin, G. Cuzon (Tahiti, French Polynesia), G. Gaxiola, C. Rosas, L. Arena (Yucatan, Mexico), D.P. Bureau (Ontario, Canada) and J.C. Cochard (Tahiti, French Polynesia). 439
- Digestive physiology and metabolism of green abalone *Haliotis fulgens* from postlarvae to juvenile, fed three different diatoms
M.T. Viana, G. Correa, J.P. Lazo (Ensenada BC, Mexico), R. Frias-Díaz, E. Durazo-Beltrán and C. Vasquez-Pelaez (Mexico). 449
- Effect of wet-incubation of dietary plant feedstuffs with phytases on growth and mineral digestibility by common carp (*Cyprinus carpio* L.)
L.C. Nwanna (Akure, Nigeria), R. Eisenreich and F.J. Schwarz (Freising-Weisheusteden, Germany). 461

Physiology and Endocrinology

- Effect of starvation on the initiation of feeding, growth and survival rate of juvenile seahorses, *Hippocampus trimaculatus* Leach and *Hippocampus kuda* Bleeker
J. Sheng, Q. Lin, Q. Chen, L. Shen, J. Lu (Guangzhou, PR China). 469
- Immune condition of *Chlamys farreri* in response to acute temperature challenge
M. Chen (Qingdao, Beijing, China), H. Yang (Qingdao, China), M. Delaporte (Charlottetown, Prince Edward Island, Canada) and S. Zhao (Qingdao, Beijing, China). 479
- Effects of a gonadotropin-releasing hormone analog combined with pimozide on plasma sex steroid hormones, ovulation and egg quality in freshwater-exposed female chum salmon (*Oncorhynchus keta*)
W. Park (Gangneung, South Korea), C.H. Lee, C.S. Lee (Gangwon, South Korea), D.-J. Kim (Busan, South Korea), J.-H. Kim (Gangneung, South Korea), C.S. Tamaru (Hawaii, USA) and Y.C. Sohn (Seoul, South Korea). 488
- Antisense for gonadotropin-releasing hormone reduces gonadotropin synthesis and gonadal development in transgenic common carp (*Cyprinus carpio*)
W. Hu, S. Li, B. Tang, Y. Wang (Wuhan, China), H. Lin, X. Liu (Guangzhou, China), J. Zou (Aberdeen, UK) and Z. Zhu (Wuhan, China). 498
- Captivity, ablation and starvation of the prawn *Penaeus monodon* affects protein and lipid content in ovary and hepatopancreas tissues
G. Marsden, P. Mather and N. Richardson (Brisbane, Qld, Australia). 507
- Effect of culture media and tissue extracts in the mantle explant culture of abalone, *Haliotis varia* Linnaeus
C.P. Suja, N. Sukumaran and S. Dharmaraj (Tirunelveli, India). 516
- Stability of 17 α -methyltestosterone in fish feed
T.P. Barry (Madison, WI, United States), A. Marwah and P. Marwah (WI, United States). 523
- Determination of microcystins in fish tissues using HPLC with a rapid and efficient solid phase extraction
L. Xie and H.-D. Park (Matsumoto, Japan). 530
- Cryoprotectant optimization for sperm of diploid Pacific oysters by use of commercial dairy sperm freezing facilities
Q. Dong (Wenzhou, PR China; Baton Rouge, Louisiana, USA), C. Huang (Wenzhou, PR China), B. Eudeline (Quilcene, Washington, USA) and T.R. Tiersch (Baton Rouge, Louisiana, USA). 537
- Temperature and salinity effects on plasma insulin-like growth factor-I concentrations and growth in juvenile turbot (*Scophthalmus maximus*)
A.K. Imsland (Kópavogur, Iceland; Bergen, Norway), B.T. Björnsson (Göteborg, Sweden), S. Gunnarsson (Kópavogur, Iceland), A. Foss and S.O. Stefansson (Bergen, Norway). 546

Short Communications

- Acute toxicity and sublethal effects of ammonia and nitrite for juvenile cobia *Rachycentron canadum*
R.V. Rodrigues (Rio Grande, Brazil), M.H. Schwarz, B.C. Delbos (Hampton, VA, USA) and L.A. Sampaio (Rio Grande, Brazil). 553
- Development of novel EST-SSR markers in common carp by data mining from public EST sequences
D. Wang, X. Liao, L. Cheng (Wuhan, Beijing, PR China), X. Yu and J. Tong (Wuhan, PR China). 558

Contents (continued)

Behavioural studies of host, non-host and mate location by the Sea Louse, <i>Caligus rogercresseyi</i> Boxshall & Bravo, 2000 (Copepoda: Caligidae) J. Pino-Marambio (Temuco, Chile), A.J. Mordue (Luntz) (Aberdeen, United Kingdom), M. Birkett (Hertfordshire, United Kingdom), J. Carvajal, G. Asencio, A. Mellado (Puerto Montt, Chile) and A. Quiroz (Temuco, Chile)	70
Epidemiology of blindness and cataracts in cage reared ongrown Atlantic halibut <i>Hippoglossus hippoglossus</i> J.W. Treasurer (Ardnamurchan, UK), D.I. Cox and T. Wall (Inverness, UK)	77
Risk assessment for metazoan parasites of yellowtail kingfish <i>Seriola lalandi</i> (Perciformes: Carangidae) in South Australian sea-cage aquaculture K.S. Hutson (Adelaide, South Australia, Australia), I. Ernst (Adelaide, South Australia, Canberra, ACT, Australia) and I.D. Whittington (Adelaide, North Terrace, South Australia, Australia)	85
Mortality after IPNV challenge of Atlantic salmon (<i>Salmo salar</i> L.) differs based on developmental stage of fish or challenge route A. Rønneseth, H.I. Wergeland, M. Devik, Ø. Evensen and E.F. Pettersen (Bergen, Norway)	100
Identification of a protein binding to the phagocytosis activating protein (PAP) in immunized black tiger shrimp W. Chotigeat, P. Deachamag and A. Phongdara (Songkhla, Thailand)	112
Genetics	
Genetic diversity of hatchery stocks of giant freshwater prawn (<i>Macrobrachium rosenbergii</i>) in Thailand K. Chareontawee (Nakorn Pathom, Thailand), S. Poompuang, U. Na-Nakorn and W. Kamonrat (Bangkok, Thailand)	121
Culture of triploid greenlip abalone (<i>Haliotis laevis</i> Donovan) to market size: Commercial implications G.A. Dunstan, N.G. Elliott, S.A. Appleyard, B.H. Holmes, N. Conod, M.A. Grubert and M.A. Cozens (Tasmania, Australia)	130
Yellow perch strain evaluation I: Genetic variance of six broodstock populations B. Brown (Richmond, Virginia, USA), H.-P. Wang (Piketon, Ohio, USA), L. Li (Richmond, Virginia, USA; Qingdao, China), C. Givens (Richmond, Virginia, USA) and G. Wallat (Piketon, Ohio, USA)	142
Genetic comparison of cultured and wild populations of the clam <i>Coelomactra antiquata</i> (Spengler) in China using AFLP markers L. Kong and Q. Li (Qingdao, China)	152
Genetic potential for simultaneous selection of growth and body composition in rainbow trout (<i>Oncorhynchus mykiss</i>) depends on the dietary protein and lipid content: Phenotypic and genetic correlations on two diets A. Kause (Jokioinen, Finland), D. Tobin (Aberdeen, UK), E.A. Mäntysaari (Jokioinen, Finland), S.A.M. Martin, D.F. Houlihan (Aberdeen, UK), A. Kiessling (Matredal, Ås, Norway), K. Rungruangsak-Torrissen (Matredal, Norway), O. Ritola (Tervo, Finland) and K. Ruohonen (Turku, Finland)	162
Positive genetic correlation between resistance to bacterial (furunculosis) and viral (infectious salmon anaemia) diseases in farmed Atlantic salmon (<i>Salmo salar</i>) J. Ødegård, I. Olesen, B. Gjerde and G. Klemetsdal (Ås, Norway)	173
Construction of genetic linkage maps of guppy (<i>Poecilia reticulata</i>) based on AFLP and microsatellite DNA markers X. Shen, G. Yang, Y. Liu, M. Liao, X. Wang, M. Zhu, W. Song (Qingdao, PR China), G. Zou, Q. Wei, D. Wang and D. Chen (Jingzhou, PR China)	178
Husbandry and Management	
Bath sponge aquaculture in Torres Strait, Australia: Effect of explant size, farming method and the environment on culture success A.R. Duckworth and C. Wolff (Townsville, QLD, Australia)	188
Use of periphytic cyanobacterium and mixed diatoms coated substrate for improving water quality, survival and growth of <i>Penaeus monodon</i> Fabricius postlarvae H. Khatoon, F.Md. Yusoff, S. Banerjee, M. Shariff and S. Mohamed (Serdang, Malaysia)	196
Effect of water velocity on the growth of California halibut (<i>Paralichthys californicus</i>) juveniles G.E. Merino (Coquimbo, La Serena, Chile), R.H. Piedrahita and D.E. Conklin (Davis, California, USA)	206
Growth model for Atlantic cod (<i>Gadus morhua</i>): Effects of temperature and body weight on growth rate B. Björnsson (Reykjavík, Iceland), A. Steinarsson (Grindavík, Iceland) and T. Árnason (Akureyri, Iceland)	216
Ammonia and urea excretion rates of California halibut (<i>Paralichthys californicus</i> , Ayres) under farm-like conditions G.E. Merino (Coquimbo, La Serena, Chile), R.H. Piedrahita and D.E. Conklin (Davis, California, USA)	227
Interactive effects of oxygen saturation and ammonia on growth and blood physiology in juvenile turbot A. Foss (Bergen, Norway), A.K. Imsland (Kópavogur, Iceland; Bergen, Norway), B. Roth (Bergen, Norway), E. Schram (IJmuiden, The Netherlands) and S.O. Stefansson (Bergen, Norway)	244

Contents (continued)

Loss of allele diversity in introduced populations of the hermaphroditic bay scallop <i>Argopecten irradians</i> L. Wang (Qingdao, China), H. Zhang (Qingdao, Beijing, China), L. Song (Qingdao, China) and X. Guo (Port Norris, New Jersey, USA)	252
Diet composition and preference of juvenile Murray cod, trout cod and Macquarie perch (<i>Percichthyidae</i>) reared in fertilised earthen ponds B.A. Ingram (Alexandra, VIC, Australia) and S.S. De Silva (Warrnambool, VIC, Australia)	260
Storage of <i>Caiman latirostris</i> (Crocodylia: Alligatoridae) eggs in harvest containers: Effects on hatchability C.I. Piña, M. Simoncini (Santa Fe, Entre Ríos, Argentina), P. Siroski and A. Larriera (Santa Fe, Argentina) . . .	271
Development of a new protocol for testing bath sponge quality D. Loudon, S. Inderbitzin, Z. Peng and R. de Nys (QLD, Australia)	275
Utility of sea urchin embryo-larval bioassays for assessing the environmental impact of marine fishcage farming A. Marin, S. Montoya, R. Vita, L. Marín-Guirao, J. Lloret and F. Aguado (Murcia, Spain)	286
Effect of delayed initial feeding on growth and survival of Asian sea bass <i>Lates calcarifer</i> (Bloch) larvae M. Kailasam, A.R. Thirunavukkarasu (Chennai, India), S. Selvaraj (Fukuoka, Japan) and P. Stalin (Chennai, India)	298
Agonistic behaviour of signal crayfish (<i>Pacifastacus leniusculus</i> Dana) in different social environments: Effect of size heterogeneity on growth and food intake T. Ahvenharju (Evo, Finland) and K. Ruohonen (Turku, Finland)	307
Survival, growth and digestive enzyme activity of juveniles of the fat snook (<i>Centropomus parallelus</i>) reared at different salinities M.Y. Tsuzuki, J.K. Sugai, J.C. Maciel, C.J. Francisco and V.R. Cerqueira (Florianópolis, Brazil)	319
Deleterious effects of food restrictions in yellowtail kingfish <i>Seriola lalandi</i> during early development B.N. Chen, J.G. Qin (Adelaide, SA, Australia), J.F. Carragher, S.M. Clarke, M.S. Kumar and W.G. Hutchinson (Henly Beach, Australia)	326
Effects of oyster farming on macrofaunal assemblages associated with <i>Lanice conchilega</i> tubeworm populations: A trophic analysis using natural stable isotopes S. Dubois, J.C. Marin-Léal (Caen cedex, France), M. Ropert (Port en Bessin, France) and S. Lefebvre (Caen cedex, France)	336
Effects of feeding frequency and ration level on growth, feed utilization and nitrogen waste output of cuneate drum (<i>Nibea miichthioides</i>) reared in net pens Y. Wang (Hangzhou, Shanghai, China), L.-J. Kong, K. Li (Shanghai, China) and D.P. Bureau (Guelph, Ontario, Canada)	350
Comparison between some procedures for monitoring offshore cage culture in western Mediterranean Sea: Sampling methods and impact indicators in soft substrata F. Aguado-Giménez, A. Marín, S. Montoya, L. Marín-Guirao, A. Piedecausa and B. García-García (Murcia, Spain)	357
Towards the maximum profitability of smallholder catfish nurseries: Predator defense and feeding-adapted stocking of <i>Clarias gariepinus</i> S. Yong-Sulem (Foumban, Cameroon), R.E. Brummett (Yaoundé, Cameroon), T.E. Tabi and J. Tchoumboué (Dschang, Cameroon)	371
The effect of different substrates on pearl oyster <i>Pinctada martensii</i> (Dunker) larvae settlement Z. Su (Guangzhou, Beijing, Lianyungang, China), L. Huang, Y. Yan (Guangzhou, China) and H. Li (Guangzhou, Beijing, China)	377
Relationships between oyster mortality patterns and environmental data from monitoring databases along the coasts of France P. Soletchnik (La Tremblade, France), M. Ropert, J. Mazurié, P. Gildas Fleury and F. Le Coz (France) . . .	384
Nutrition	
Taurine supplementation to alternative dietary proteins used in fish meal replacement enhances growth of juvenile cobia (<i>Rachycentron canadum</i>) A.N. Lurger, E. McLean (Blacksburg, VA, USA), T.G. Gaylord (Hagerman, ID, USA), D. Kuhn and S.R. Craig (Blacksburg, VA, USA)	401
The ingestion rate of <i>Litopenaeus vannamei</i> larvae as a function of <i>Tisbe biminiensis</i> copepod concentration L.C.M. de Lima and L.P. Souza-Santos (Recife, Brazil)	411
Effect of dietary canola oil level on the growth performance and fatty acid composition of juvenile red sea bream, <i>Pagrus major</i> S.S.Y. Huang (Vancouver, BC, Canada), A.N. O-o (Minato City, Tokyo, Japan), D.A. Higgs, C.J. Brauner (Vancouver, BC, Canada) and S. Satoh (Minato City, Tokyo, Japan)	420

Contents (continued)

Bioimpedance assessment of body composition in cobia <i>Rachycentron canadum</i> (L. 1766) M. Duncan, S.R. Craig, A.N. Lunger, D.D. Kuhn, G. Salze and E. McLean (Blacksburg, VA, USA)	432
Effect of dietary protein level on growth and energy utilization by <i>Litopenaeus stylirostris</i> under laboratory conditions F. Gauquelin, G. Cuzon (Tahiti, French Polynesia), G. Gaxiola, C. Rosas, L. Arena (Yucatan, Mexico), D.P. Bureau (Ontario, Canada) and J.C. Cochard (Tahiti, French Polynesia)	439
Digestive physiology and metabolism of green abalone <i>Haliotis fulgens</i> from postlarvae to juvenile, fed three different diatoms M.T. Viana, G. Correa, J.P. Lazo (Ensenada BC, Mexico), R. Frías-Díaz, E. Durazo-Beltrán and C. Vasquez-Pelaez (Mexico)	449
Effect of wet-incubation of dietary plant feedstuffs with phytases on growth and mineral digestibility by common carp (<i>Cyprinus carpio</i> L) L.C. Nwanna (Akure, Nigeria), R. Eisenreich and F.J. Schwarz (Freising-Weisheustephen, Germany) . . .	461
Physiology and Endocrinology	
Effect of starvation on the initiation of feeding, growth and survival rate of juvenile seahorses, <i>Hippocampus trimaculatus</i> Leach and <i>Hippocampus kuda</i> Bleeker J. Sheng, Q. Lin, Q. Chen, L. Shen, J. Lu (Guangzhou, PR China)	469
Immune condition of <i>Chlamys farreri</i> in response to acute temperature challenge M. Chen (Qingdao, Beijing, China), H. Yang (Qingdao, China), M. Delaporte (Charlottetown, Prince Edward Island, Canada) and S. Zhao (Qingdao, Beijing, China)	479
Effects of a gonadotropin-releasing hormone analog combined with pimozide on plasma sex steroid hormones, ovulation and egg quality in freshwater-exposed female chum salmon (<i>Oncorhynchus keta</i>) W. Park (Gangneung, South Korea), C.H. Lee (Gangwon, South Korea), C.S. Lee (Gangwon, South Korea), D.-J. Kim (Busan, South Korea), J.-H. Kim (Gangneung, South Korea), C.S. Tamaru (Hawaii, USA) and Y.C. Sohn (Seoul, South Korea)	488
Antisense for gonadotropin-releasing hormone reduces gonadotropin synthesis and gonadal development in transgenic common carp (<i>Cyprinus carpio</i>) W. Hu, S. Li, B. Tang, Y. Wang (Wuhan, China), H. Lin, X. Liu (Guangzhou, China), J. Zou (Aberdeen, UK) and Z. Zhu (Wuhan, China)	498
Captivity, ablation and starvation of the prawn <i>Penaeus monodon</i> affects protein and lipid content in ovary and hepatopancreas tissues G. Marsden, P. Mather and N. Richardson (Brisbane, Qld, Australia)	507
Effect of culture media and tissue extracts in the mantle explant culture of abalone, <i>Haliotis varia</i> Linnaeus C.P. Suja, N. Sukumaran and S. Dharmaraj (Tirunelveli, India)	516
Stability of 17 α -methyltestosterone in fish feed T.P. Barry (Madison, WI, United States), A. Marwah and P. Marwah (WI, United States)	523
Determination of microcystins in fish tissues using HPLC with a rapid and efficient solid phase extraction L. Xie and H.-D. Park (Matsumoto, Japan)	530
Cryoprotectant optimization for sperm of diploid Pacific oysters by use of commercial dairy sperm freezing facilities Q. Dong (Wenzhou, PR China; Baton Rouge, Louisiana, USA), C. Huang (Wengzhou, PR China), B. Eudeline (Quilcene, Washington, USA) and T.R. Tiersch (Baton Rouge, Louisiana, USA)	537
Temperature and salinity effects on plasma insulin-like growth factor-I concentrations and growth in juvenile turbot (<i>Scophthalmus maximus</i>) A.K. Imsland (Kópavogur, Iceland; Bergen, Norway), B.T. Björnsson (Göteborg, Sweden), S. Gunnarsson (Kópavogur, Iceland), A. Foss and S.O. Stefansson (Bergen, Norway)	546
Short Communications	
Acute toxicity and sublethal effects of ammonia and nitrite for juvenile cobia <i>Rachycentron canadum</i> R.V. Rodrigues (Rio Grande, Brazil), M.H. Schwarz, B.C. Delbos (Hampton, VA, USA) and L.A. Sampaio (Rio Grande, Brazil)	553
Development of novel EST-SSR markers in common carp by data mining from public EST sequences D. Wang, X. Liao, L. Cheng (Wuhan, Beijing, PR China), X. Yu and J. Tong (Wuhan, PR China)	558
Contents of Aquaculture, Volume 271	575